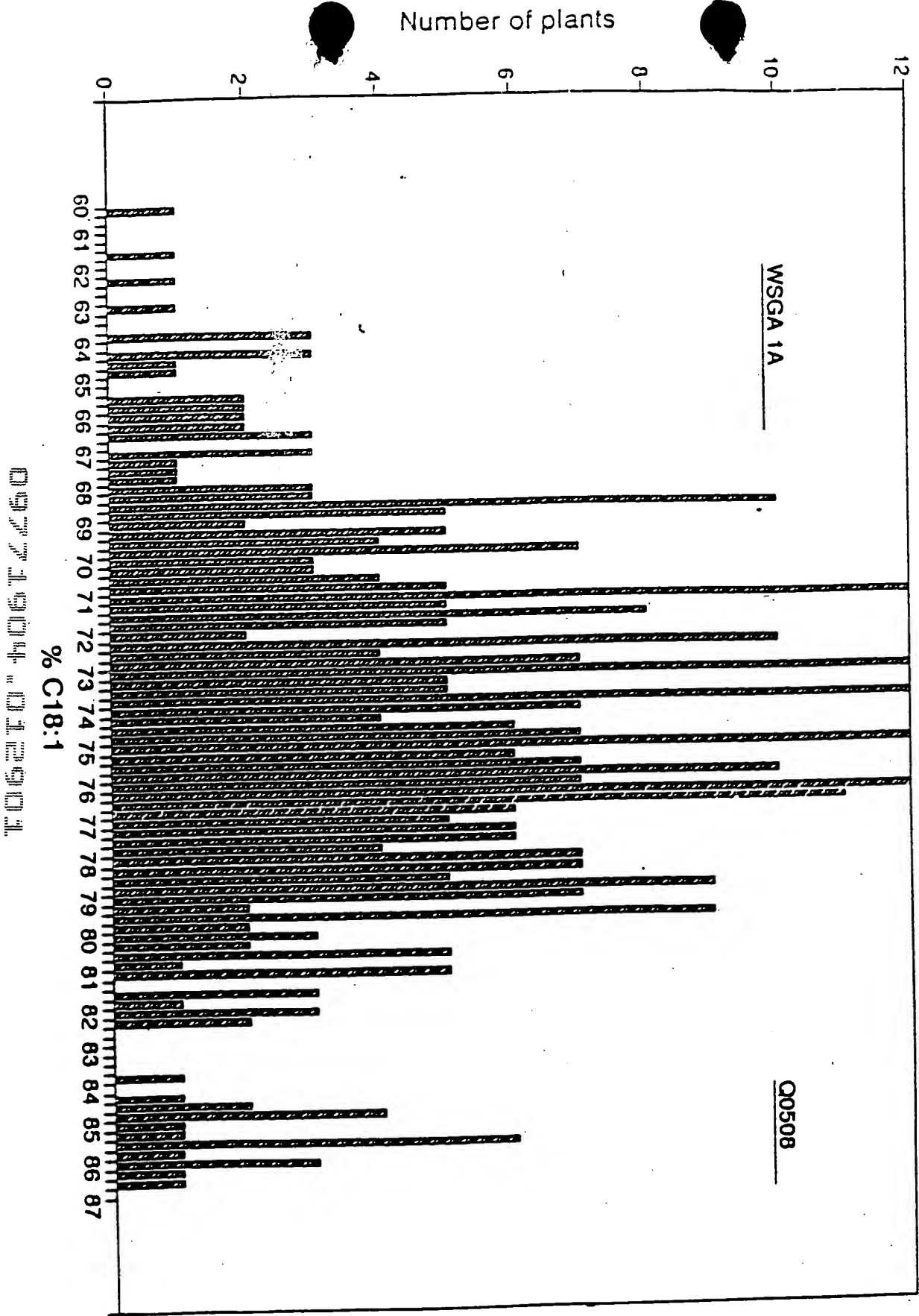


Fig. 1 C18:1 Frequencies
for 92EF (MSGA 1A X Q0508)



	10	20	30	40	
1	ATGGG	TGCAG	GTGG	AGAAT	GCAAGTGTCTCCTCTCTCCA Fad2-D wt
1	ATGGG	TGCAG	GTGG	AAGAAT	GCAAGTGTCTCCTCCTCTCCA Fad2-D (GA316) IMC129
1	ATGGG	TGCAG	GTGG	AAGAAT	GCAAGTGTCTCCTCCTCTCCA Fad2-F wt
1	ATGGG	TGCAG	GTGG	AAGAAT	GCAAGTGTCTCCTCCTCTCCA Fad2-F (TA515) Q508
1	ATGGG	TGCAG	GTGG	AAGAAT	GCAAGTGTCTCCTCCTCTCCA Fad2-F (GA908) Q4275
	50	60	70	80	
41	AAAAG	TCTGA	AACCG	ACAA	ACATCAAGCGCGGTACCCCTGCGGA Fad2-D wt
41	AAAAG	TCTGA	AACCG	ACAA	ACATCAAGCGCGGTACCCCTGCGGA Fad2-D (GA316) IMC129
41	AGAAG	TCTGA	AACCG	ACAA	ACATCAAGCGCGGTACCCCTGCGGA Fad2-F wt
41	AGAAG	TCTGA	AACCG	ACAA	ACATCAAGCGCGGTACCCCTGCGGA Fad2-F (TA515) Q508
41	AGAAG	TCTGA	AACCG	ACAA	ACATCAAGCGCGGTACCCCTGCGGA Fad2-F (GA908) Q4275
	90	100	110	120	
81	GACAC	CGCCCT	TCACT	GTTC	GGAGAACTCAAGAAAGCAATC Fad2-D wt
81	GACAC	CGCCCT	TCACT	GTTC	GGAGAACTCAAGAAAGCAATC Fad2-D (GA316) IMC129
81	GACAC	CGCCCT	TCACT	GTTC	GGAGAACTCAAGAAAGCAATC Fad2-F wt
81	GACAC	CGCCCT	TCACT	GTTC	GGAGAACTCAAGAAAGCAATC Fad2-F (TA515) Q508
81	GACAC	CGCCCT	TCACT	GTTC	GGAGAACTCAAGAAAGCAATC Fad2-F (GA908) Q4275
	130	140	150	160	
121	CCACC	GCACT	GTTT	CAAAC	GGCTCGATCCCTCGCTCTTTCT Fad2-D wt
121	CCACC	GCACT	GTTT	CAAAC	GGCTCGATCCCTCGCTCTTTCT Fad2-D (GA316) IMC129
121	CCACC	GCACT	GTTT	CAAAC	GGCTCGATCCCTCGCTCTTTCT Fad2-F wt
121	CCACC	GCACT	GTTT	CAAAC	GGCTCGATCCCTCGCTCTTTCT Fad2-F (TA515) Q508
121	CCACC	GCACT	GTTT	CAAAC	GGCTCGATCCCTCGCTCTTTCT Fad2-F (GA908) Q4275
	170	180	190	200	
161	CCTAC	CTCAT	CTGGG	GACAT	CATCATAGCCTCCTGCTTCTA Fad2-D wt
161	CCTAC	CTCAT	CTGGG	GACAT	CATCATAGCCTCCTGCTTCTA Fad2-D (GA316) IMC129
161	CCTAC	CTCAT	CTGGG	GACAT	CATCATAGCCTCCTGCTTCTA Fad2-F wt
161	CCTAC	CTCAT	CTGGG	GACAT	CATCATAGCCTCCTGCTTCTA Fad2-F (TA515) Q508
161	CCTAC	CTCAT	CTGGG	GACAT	CATCATAGCCTCCTGCTTCTA Fad2-F (GA908) Q4275
	210	220	230	240	
201	CTACG	TGCGC	CACTTA	CTTCC	CTCTCCTCCCTCACCCCT Fad2-D wt
201	CTACG	TGCGC	CACTTA	CTTCC	CTCTCCTCCCTCACCCCT Fad2-D (GA316) IMC129
201	CTACG	TGCGC	CACTTA	CTTCC	CTCTCCTCCCTCACCCCT Fad2-F wt
201	CTACG	TGCGC	CACTTA	CTTCC	CTCTCCTCCCTCACCCCT Fad2-F (TA515) Q508
201	CTACG	TGCGC	CACTTA	CTTCC	CTCTCCTCCCTCACCCCT Fad2-F (GA908) Q4275
	250	260	270	280	
241	CTCTC	CCTACT	TTCGC	CTGGC	CTCTCTACTGGGGCCTGGCCAGG Fad2-D wt
241	CTCTC	CCTACT	TTCGC	CTGGC	CTCTCTACTGGGGCCTGGCCAGG Fad2-D (GA316) IMC129
241	CTCTC	CCTACT	TTCGC	CTGGC	CTCTCTACTGGGGCCTGGCCAGG Fad2-F wt
241	CTCTC	CCTACT	TTCGC	CTGGC	CTCTCTACTGGGGCCTGGCCAGG Fad2-F (TA515) Q508
241	CTCTC	CCTACT	TTCGC	CTGGC	CTCTCTACTGGGGCCTGGCCAGG Fad2-F (GA908) Q4275

FIG. 2A

	290	300	310	320	
281	GCTGCGTCCTAACC	GGCGTCTGGGTCATAGCCCA	CACTG	Fad2-D wt	
281	GCTGCGTCCTAACC	GGCGTCTGGGTCATAGCCCA	CAAGTG	Fad2-D (GA316)	IMC129
281	GGTGCCTCCTAACC	GGCGTCTGGGTCATAGCCCA	CAAGTG	Fad2-F wt	
281	GGTGCCTCCTAACC	GGCGTCTGGGTCATAGCCCA	CAAGTG	Fad2-F (TA515)	Q508
281	GGTGCCTCCTAACC	GGCGTCTGGGTCATAGCCCA	CAAGTG	Fad2-F (GA908)	Q4275
	330	340	350	360	
321	CGGCCACCAACGCCCTTCAGCGACTACCAAGTGGCTGGACGAC	Fad2-D wt			
321	CGGCCACCAACGCCCTTCAGCGACTACCAAGTGGCTGGACGAC	Fad2-D (GA316)	IMC129		
321	CGGCCACCAACGCCCTTCAGCGACTACCAAGTGGCTGGACGAC	Fad2-F wt			
321	CGGCCACCAACGCCCTTCAGCGACTACCAAGTGGCTGGACGAC	Fad2-F (TA515)	Q508		
321	CGGCCACCAACGCCCTTCAGCGACTACCAAGTGGCTGGACGAC	Fad2-F (GA908)	Q4275		
	370	380	390	400	
361	ACCGTCGGGCTCATCTTCCACTCCTTCCTCCTCGTCCCTT	Fad2-D wt			
361	ACCGTCGGGCTCATCTTCCACTCCTTCCTCCTCGTCCCTT	Fad2-D (GA316)	IMC129		
361	ACCGTCGGGCTCATCTTCCACTCCTTCCTCCTCGTCCCTT	Fad2-F wt			
361	ACCGTCGGGCTCATCTTCCACTCCTTCCTCCTCGTCCCTT	Fad2-F (TA515)	Q508		
361	ACCGTCGGGCTCATCTTCCACTCCTTCCTCCTCGTCCCTT	Fad2-F (GA908)	Q4275		
	410	420	430	440	
401	ACTTCTCCTGGAAGTACAGTCATCGACGCCACCAATTCCAA	Fad2-D wt			
401	ACTTCTCCTGGAAGTACAGTCATCGACGCCACCAATTCCAA	Fad2-D (GA316)	IMC129		
401	ACTTCTCCTGGAAGTACAGTCATCGACGCCACCAATTCCAA	Fad2-F wt			
401	ACTTCTCCTGGAAGTACAGTCATCGACGCCACCAATTCCAA	Fad2-F (TA515)	Q508		
401	ACTTCTCCTGGAAGTACAGTCATCGACGCCACCAATTCCAA	Fad2-F (GA908)	Q4275		
	450	460	470	480	
441	CACTGGCTCCCTCGAGAGAGACGAAGTGTTTGTCCCCAAG	Fad2-D wt			
441	CACTGGCTCCCTCGAGAGAGACGAAGTGTTTGTCCCCAAG	Fad2-D (GA316)	IMC129		
441	CACTGGCTCCCTCGAGAGAGACGAAGTGTTTGTCCCCAAG	Fad2-F wt			
441	CACTGGCTCCCTCGAGAGAGACGAAGTGTTTGTCCCCAAG	Fad2-F (TA515)	Q508		
441	CACTGGCTCCCTCGAGAGAGACGAAGTGTTTGTCCCCAAG	Fad2-F (GA908)	Q4275		
	490	500	510	520	
481	AAGAAGTTCAGACATCAAGTGGTACGGCAAGTACCTCAACA	Fad2-D wt			
481	AAGAAGTTCAGACATCAAGTGGTACGGCAAGTACCTCAACA	Fad2-D (GA316)	IMC129		
481	AAGAAGTTCAGACATCAAGTGGTACGGCAAGTACCTCAACA	Fad2-F wt			
481	AAGAAGTTCAGACATCAAGTGGTACGGCAAGTACCTCAACA	Fad2-F (TA515)	Q508		
481	AAGAAGTTCAGACATCAAGTGGTACGGCAAGTACCTCAACA	Fad2-F (GA908)	Q4275		
	530	540	550	560	
521	ACCCTTTGGGACGCACCGTGATGTTAACGGTTTCAGTTTCA	Fad2-D wt			
521	ACCCTTTGGGACGCACCGTGATGTTAACGGTTTCAGTTTCA	Fad2-D (GA316)	IMC129		
521	ACCCTTTGGGACGCACCGTGATGTTAACGGTTTCAGTTTCA	Fad2-F wt			
521	ACCCTTTGGGACGCACCGTGATGTTAACGGTTTCAGTTTCA	Fad2-F (TA515)	Q508		
521	ACCCTTTGGGACGCACCGTGATGTTAACGGTTTCAGTTTCA	Fad2-F (GA908)	Q4275		

FIG. 2B

	570	580	590	600	
561	TCTCGGCTGGCCCTTGTACTTAGCCCTTCAACGTCGGGGG				Fad2-D wt
561	TCTCGGCTGGCCCTTGTACTTAGCCCTTCAACCTCTCGGGG				Fad2-D (GA316) IMC129
561	TCTCGGCTGGCCGTTGTACTTAGCCCTTCAACGTCCTCGGGGA				Fad2-F wt
561	TCTCGGCTGGCCGTTGTACTTAGCCCTTCAACCTCTCGGGGA				Fad2-F (TA515) Q508
561	TCTCGGCTGGCCGTTGTACTTAGCCCTTCAACGTCCTCGGGGA				Fad2-F (GA908) Q4275
	610	620	630	640	
601	AGACCTTACGACGGCGGGCTTTCGCTTGGCCATTTCCACCCCCA				Fad2-D wt
601	AGACCTTACGACGGCGGGCTTTCGCTTGGCCATTTCCACCCCCA				Fad2-D (GA316) IMC129
601	AGACCTTACGACGGCGGGCTTTCGCTTGGCCATTTCCACCCCCA				Fad2-F wt
601	AGACCTTACGACGGCGGGCTTTCGCTTGGCCATTTCCACCCCCA				Fad2-F (TA515) Q508
601	AGACCTTACGACGGCGGGCTTTCGCTTGGCCATTTCCACCCCCA				Fad2-F (GA908) Q4275
	650	660	670	680	
641	ACGCTCCCCATCTACAACGACCGGTGACCGTCTCCAGATATA				Fad2-D wt
641	ACGCTCCCCATCTACAACGACCGGTGACCGTCTCCAGATATA				Fad2-D (GA316) IMC129
641	ACGCTCCCCATCTACAACGACCGCGGAGCGTCTCCAGATATA				Fad2-F wt
641	ACGCTCCCCATCTACAACGACCGCGGAGCGTCTCCAGATATA				Fad2-F (TA515) Q508
641	ACGCTCCCCATCTACAACGACCGCGGAGCGTCTCCAGATATA				Fad2-F (GA908) Q4275
	690	700	710	720	
681	CATCTCCGACGGCTGGGCATCCTCGCCCGTCTGCTACGGGTCTC				Fad2-D wt
681	CATCTCCGACGGCTGGGCATCCTCGCCCGTCTGCTACGGGTCTC				Fad2-D (GA316) IMC129
681	CATCTCCGACGGCTGGGCATCCTCGCCCGTCTGCTACGGGTCTC				Fad2-F wt
681	CATCTCCGACGGCTGGGCATCCTCGCCCGTCTGCTACGGGTCTC				Fad2-F (TA515) Q508
681	CATCTCCGACGGCTGGGCATCCTCGCCCGTCTGCTACGGGTCTC				Fad2-F (GA908) Q4275
	730	740	750	760	
721	TACCGCTACGGCTGCTGTCCAAAGGAGTTGCCCTCGATGGTCT				Fad2-D wt
721	TACCGCTACGGCTGCTGTCCAAAGGAGTTGCCCTCGATGGTCT				Fad2-D (GA316) IMC129
721	TTCCGTTACGCCCGCCGCCAGGGAGTGGCCCTCGATGGTCT				Fad2-F wt
721	TTCCGTTACGCCCGCCGCCAGGGAGTGGCCCTCGATGGTCT				Fad2-F (TA515) Q508
721	TTCCGTTACGCCCGCCGCCAGGGAGTGGCCCTCGATGGTCT				Fad2-F (GA908) Q4275
	770	780	790	800	
761	GCTTCTACGGAGTTCCCTCTTCTGATTGTCAACGGGGTTCTT				Fad2-D wt
761	GCTTCTACGGAGTTCCCTCTTCTGATTGTCAACGGGGTTCTT				Fad2-D (GA316) IMC129
761	GCTTCTACGGAGTCCCGCTTCTGATTGTCAATGGGTTTCTT				Fad2-F wt
761	GCTTCTACGGAGTCCCGCTTCTGATTGTCAATGGGTTTCTT				Fad2-F (TA515) Q508
761	GCTTCTACGGAGTCCCGCTTCTGATTGTCAATGGGTTTCTT				Fad2-F (GA908) Q4275
	810	820	830	840	
801	AGTTTTTGATCACTTACTTTGCAGCACACGCATCCTTCCCTG				Fad2-D wt
801	AGTTTTTGATCACTTACTTTGCAGCACACGCATCCTTCCCTG				Fad2-D (GA316) IMC129
801	CGTGTTGATCACTTACTTTGCAGCACACGCATCCTTCCCTG				Fad2-F wt
801	CGTGTTGATCACTTACTTTGCAGCACACGCATCCTTCCCTG				Fad2-F (TA515) Q508
801	CGTGTTGATCACTTACTTTGCAGCACACGCATCCTTCCCTG				Fad2-F (GA908) Q4275

FIG. 2C

	850	860	870	880	
841	CCTCACTATGACTCTCTGAGTGGGATTGGTTGAGGGGAG				Fad2-D wt
841	CCTCACTATGACTCTGTCTGAGTGGGATTGGTTGAGGGGAG				Fad2-D (GA316) IMC129
841	CCTCACTACGATTCTGTCCGAGTGGGATTGGTTGAGGGGAG				Fad2-F wt
841	CCTCACTACGATTCTGTCCGACTGGGATTGGTTGAGGGGAG				Fad2-F (TA515) Q508
841	CCTCACTACGATTCTGTCCGAGTGGGATTGGTTGAGGGGAG				Fad2-F (GA908) Q4275
	890	900	910	920	
881	CTTTGGCCACCGTTGACACAGACTACCGAATCTTGAACAA				Fad2-D wt
881	CTTTGGCCACCGTTGACACAGACTACCGAATCTTGAACAA				Fad2-D (GA316) IMC129
881	CTTTGGCTACCGTTGACACAGACTACCGAATCTTGAACAA				Fad2-F wt
881	CTTTGGCTACCGTTGACACAGACTACCGAATCTTGAACAA				Fad2-F (TA515) Q508
881	CTTTGGCTACCGTTGACACAGACTACCGAATCTTGAACAA				Fad2-F (GA908) Q4275
	930	940	950	960	
921	GGTCTTCCACAATATCACGGACACGGCACGTGGCGGCATCAC				Fad2-D wt
921	GGTCTTCCACAATATCACGGACACGGCACGTGGCGGCATCAC				Fad2-D (GA316) IMC129
921	GGTCTTCCACAATATTACCGACACGGCACGTGGCGGCATCAT				Fad2-F wt
921	GGTCTTCCACAATATTACCGACACGGCACGTGGCGGCATCAT				Fad2-F (TA515) Q508
921	GGTCTTCCACAATATTACCGACACGGCACGTGGCGGCATCAT				Fad2-F (GA908) Q4275
	970	980	990	1000	
961	CTGTTCTTCGACCATGCCCGCATTATCATGCCGATGGAAGCTA				Fad2-D wt
961	CTGTTCTTCGACCATGCCCGCATTATCATGCCGATGGAAGCTA				Fad2-D (GA316) IMC129
961	CTGTTCTTCACGATGCCCGCATTATCACGCCGATGGAAGCTA				Fad2-F wt
961	CTGTTCTTCACGATGCCCGCATTATCACGCCGATGGAAGCTA				Fad2-F (TA515) Q508
961	CTGTTCTTCACGATGCCCGCATTATCACGCCGATGGAAGCTA				Fad2-F (GA908) Q4275
	1010	1020	1030	1040	
1001	CGAAGGCGGATAAAAGCCGATACTGGGAGAGTATTATCAGTT				Fad2-D wt
1001	CGAAGGCGGATAAAAGCCGATACTGGGAGAGTATTATCAGTT				Fad2-D (GA316) IMC129
1001	CCAAGGCGGATAAAAGCCGATACTGGGAGAGTATTATCAGTT				Fad2-F wt
1001	CCAAGGCGGATAAAAGCCGATACTGGGAGAGTATTATCAGTT				Fad2-F (TA515) Q508
1001	CCAAGGCGGATAAAAGCCGATACTGGGAGAGTATTATCAGTT				Fad2-F (GA908) Q4275
	1050	1060	1070	1080	
1041	CGATGGGACGCCCGGTGGTTAAGGCGATGTGGAGGGGAGGCG				Fad2-D wt
1041	CGATGGGACGCCCGGTGGTTAAGGCGATGTGGAGGGGAGGCG				Fad2-D (GA316) IMC129
1041	CGATGGGACGCCCGGTGGTTAAGGCGATGTGGAGGGGAGGCG				Fad2-F wt
1041	CGATGGGACGCCCGGTGGTTAAGGCGATGTGGAGGGGAGGCG				Fad2-F (TA515) Q508
1041	CGATGGGACGCCCGGTGGTTAAGGCGATGTGGAGGGGAGGCG				Fad2-F (GA908) Q4275
	1090	1100	1110	1120	
1081	AAGGAGTGATCTATGTGGAACCGGACAGGCCAAGGTGAGA				Fad2-D wt
1081	AAGGAGTGATCTATGTGGAACCGGACAGGCCAAGGTGAGA				Fad2-D (GA316) IMC129
1081	AAGCAGTGATCTATGTGGAACCGGACAGGCCAAGGTGAGA				Fad2-F wt
1081	AAGGAGTGATCTATGTGGAACCGGACAGGCCAAGGTGAGA				Fad2-F (TA515) Q508
1081	AAGCAGTGATCTATGTGGAACCGGACAGGCCAAGGTGAGA				Fad2-F (GA908) Q4275

FIG. 2D

0921501-012901

Pad2-D wt
Pad2-D (GA316) TMC129
Pad2-F wt
Pad2-P (TA515) Q508
Pad2-F (GA908) Q4275

FIG. 2E

		10	20	
1	Met Gly Ala Gly Gly Arg Met Gln Val Ser Pro Pro Ser Lys Lys Ser Glu Thr Asp Asn			Fad2-D wt
1	Met Gly Ala Gly Gly Arg Met Gln Val Ser Pro Pro Ser Lys Lys Ser Glu Thr Asp Asn			Fad2-D (GA316) IMC129
1	Met Gly Ala Gly Gly Arg Met Gln Val Ser Pro Pro Ser Lys Lys Ser Glu Thr Asp Thr			Fad2-F wt
1	Met Gly Ala Gly Gly Arg Met Gln Val Ser Pro Pro Ser Lys Lys Ser Glu Thr Asp Thr			Fad2-F (TA515) Q508
1	Met Gly Ala Gly Gly Arg Met Gln Val Ser Pro Pro Ser Lys Lys Ser Glu Thr Asp Thr			Fad2-F (GA908) Q4275
		30	40	
61	Ile Lys Arg Val Pro Cys Glu Thr Pro Pro Phe Thr Val Gly Glu Leu Lys Lys Ala Ile			Fad2-D wt
61	Ile Lys Arg Val Pro Cys Glu Thr Pro Pro Phe Thr Val Gly Glu Leu Lys Lys Ala Ile			Fad2-D (GA316) IMC129
61	Ile Lys Arg Val Pro Cys Glu Thr Pro Pro Phe Thr Val Gly Glu Leu Lys Lys Ala Ile			Fad2-F wt
61	Ile Lys Arg Val Pro Cys Glu Thr Pro Pro Phe Thr Val Gly Glu Leu Lys Lys Ala Ile			Fad2-F (TA515) Q508
61	Ile Lys Arg Val Pro Cys Glu Thr Pro Pro Phe Thr Val Gly Glu Leu Lys Lys Ala Ile			Fad2-F (GA908) Q4275
		50	60	
121	Pro Pro His Cys Phe Lys Arg Ser Ile Pro Arg Ser Phe Ser Tyr Leu Ile Trp Asp Ile			Fad2-D wt
121	Pro Pro His Cys Phe Lys Arg Ser Ile Pro Arg Ser Phe Ser Tyr Leu Ile Trp Asp Ile			Fad2-D (GA316) IMC129
121	Pro Pro His Cys Phe Lys Arg Ser Ile Pro Arg Ser Phe Ser Tyr Leu Ile Trp Asp Ile			Fad2-F wt
121	Pro Pro His Cys Phe Lys Arg Ser Ile Pro Arg Ser Phe Ser Tyr Leu Ile Trp Asp Ile			Fad2-F (TA515) Q508
121	Pro Pro His Cys Phe Lys Arg Ser Ile Pro Arg Ser Phe Ser Tyr Leu Ile Trp Asp Ile			Fad2-F (GA908) Q4275
		70	80	
181	Ile Ile Ala Ser Cys Phe Tyr Tyr Val Ala Thr Thr Tyr Phe Pro Leu Leu Pro His Pro			Fad2-D wt
181	Ile Ile Ala Ser Cys Phe Tyr Tyr Val Ala Thr Thr Tyr Phe Pro Leu Leu Pro His Pro			Fad2-D (GA316) IMC129
181	Ile Ile Ala Ser Cys Phe Tyr Tyr Val Ala Thr Thr Tyr Phe Pro Leu Leu Pro His Pro			Fad2-F wt
181	Ile Ile Ala Ser Cys Phe Tyr Tyr Val Ala Thr Thr Tyr Phe Pro Leu Leu Pro His Pro			Fad2-F (TA515) Q508
181	Ile Ile Ala Ser Cys Phe Tyr Tyr Val Ala Thr Thr Tyr Phe Pro Leu Leu Pro His Pro			Fad2-F (GA908) Q4275
		90	100	
241	Leu Ser Tyr Phe Ala Trp Pro Leu Tyr Trp Ala Cys Gln Gly Cys Val Leu Thr Gly Val			Fad2-D wt
241	Leu Ser Tyr Phe Ala Trp Pro Leu Tyr Trp Ala Cys Gln Gly Cys Val Leu Thr Gly Val			Fad2-D (GA316) IMC129
241	Leu Ser Tyr Phe Ala Trp Pro Leu Tyr Trp Ala Cys Gln Gly Cys Val Leu Thr Gly Val			Fad2-F wt
241	Leu Ser Tyr Phe Ala Trp Pro Leu Tyr Trp Ala Cys Gln Gly Cys Val Leu Thr Gly Val			Fad2-F (TA515) Q508
241	Leu Ser Tyr Phe Ala Trp Pro Leu Tyr Trp Ala Cys Gln Gly Cys Val Leu Thr Gly Val			Fad2-F (GA908) Q4275
		110	120	
301	Trp Val Ile Ala His Glu Cys Gly His His Ala Phe Ser Asp Tyr Gln Trp Leu Asp Asp			Fad2-D wt
301	Trp Val Ile Ala His Lys Cys Gly His His Ala Phe Ser Asp Tyr Gln Trp Leu Asp Asp			Fad2-D (GA316) IMC129
301	Trp Val Ile Ala His Glu Cys Gly His His Ala Phe Ser Asp Tyr Gln Trp Leu Asp Asp			Fad2-F wt
301	Trp Val Ile Ala His Glu Cys Gly His His Ala Phe Ser Asp Tyr Gln Trp Leu Asp Asp			Fad2-F (TA515) Q508
301	Trp Val Ile Ala His Glu Cys Gly His His Ala Phe Ser Asp Tyr Gln Trp Leu Asp Asp			Fad2-F (GA908) Q4275
		130	140	
361	Thr Val Gly Leu Ile Phe His Ser Phe Leu Leu Val Pro Tyr Phe Ser Trp Lys Tyr Ser			Fad2-D wt
361	Thr Val Gly Leu Ile Phe His Ser Phe Leu Leu Val Pro Tyr Phe Ser Trp Lys Tyr Ser			Fad2-D (GA316) IMC129
361	Thr Val Gly Leu Ile Phe His Ser Phe Leu Leu Val Pro Tyr Phe Ser Trp Lys Tyr Ser			Fad2-F wt
361	Thr Val Gly Leu Ile Phe His Ser Phe Leu Leu Val Pro Tyr Phe Ser Trp Lys Tyr Ser			Fad2-F (TA515) Q508
361	Thr Val Gly Leu Ile Phe His Ser Phe Leu Leu Val Pro Tyr Phe Ser Trp Lys Tyr Ser			Fad2-F (GA908) Q4275

FIG. 3A

150										160												
421	His	Arg	Arg	His	His	Ser	Asn	Thr	Gly	Ser	Leu	Glu	Arg	Asp	Glu	Val	Phe	Val	Pro	Lys	Fad2-D	wt
421	His	Arg	Arg	His	His	Ser	Asn	Thr	Gly	Ser	Leu	Glu	Arg	Asp	Glu	Val	Phe	Val	Pro	Lys	Fad2-D	(GA316) IMC129
421	His	Arg	Arg	His	His	Ser	Asn	Thr	Gly	Ser	Leu	Glu	Arg	Asp	Glu	Val	Phe	Val	Pro	Lys	Fad2-F	wt
421	His	Arg	Arg	His	His	Ser	Asn	Thr	Gly	Ser	Leu	Glu	Arg	Asp	Glu	Val	Phe	Val	Pro	Lys	Fad2-F	(TA515) Q508
421	His	Arg	Arg	His	His	Ser	Asn	Thr	Gly	Ser	Leu	Glu	Arg	Asp	Glu	Val	Phe	Val	Pro	Lys	Fad2-F	(GA908) Q4275
170										180												
481	Lys	Lys	Ser	Asp	Ile	Lys	Trp	Tyr	Gly	Lys	Tyr	Leu	Asn	Asn	Pro	Leu	Gly	Arg	Thr	Val	Fad2-D	wt
481	Lys	Lys	Ser	Asp	Ile	Lys	Trp	Tyr	Gly	Lys	Tyr	Leu	Asn	Asn	Pro	Leu	Gly	Arg	Thr	Val	Fad2-D	(GA316) IMC129
481	Lys	Lys	Ser	Asp	Ile	Lys	Trp	Tyr	Gly	Lys	Tyr	Leu	Asn	Asn	Pro	Leu	Gly	Arg	Thr	Val	Fad2-F	wt
481	Lys	Lys	Ser	Asp	Ile	Lys	Trp	Tyr	Gly	Lys	Tyr	His	Asn	Asn	Pro	Leu	Gly	Arg	Thr	Val	Fad2-F	(TA515) Q508
481	Lys	Lys	Ser	Asp	Ile	Lys	Trp	Tyr	Gly	Lys	Tyr	Leu	Asn	Asn	Pro	Leu	Gly	Arg	Thr	Val	Fad2-F	(GA908) Q4275
190										200												
541	Met	Leu	Thr	Val	Gln	Phe	Thr	Leu	Gly	Trp	Pro	Leu	Tyr	Leu	Ala	Phe	Asn	Val	Ser	Gly	Fad2-D	wt
541	Met	Leu	Thr	Val	Gln	Phe	Thr	Leu	Gly	Trp	Pro	Leu	Tyr	Leu	Ala	Phe	Asn	Val	Ser	Gly	Fad2-D	(GA316) IMC129
541	Met	Leu	Thr	Val	Gln	Phe	Thr	Leu	Gly	Trp	Pro	Leu	Tyr	Leu	Ala	Phe	Asn	Val	Ser	Gly	Fad2-F	wt
541	Met	Leu	Thr	Val	Gln	Phe	Thr	Leu	Gly	Trp	Pro	Leu	Tyr	Leu	Ala	Phe	Asn	Val	Ser	Gly	Fad2-F	(TA515) Q508
541	Met	Leu	Thr	Val	Gln	Phe	Thr	Leu	Gly	Trp	Pro	Leu	Tyr	Leu	Ala	Phe	Asn	Val	Ser	Gly	Fad2-F	(GA908) Q4275
210										220												
601	Arg	Pro	Tyr	Asp	Gly	Gly	Phe	Ala	Cys	His	Phe	His	Pro	Asn	Ala	Pro	Ile	Tyr	Asn	Asp	Fad2-D	wt
601	Arg	Pro	Tyr	Asp	Gly	Gly	Phe	Ala	Cys	His	Phe	His	Pro	Asn	Ala	Pro	Ile	Tyr	Asn	Asp	Fad2-D	(GA316) IMC129
601	Arg	Pro	Tyr	Asp	Gly	Gly	Phe	Ala	Cys	His	Phe	His	Pro	Asn	Ala	Pro	Ile	Tyr	Asn	Asp	Fad2-F	wt
601	Arg	Pro	Tyr	Asp	Gly	Gly	Phe	Ala	Cys	His	Phe	His	Pro	Asn	Ala	Pro	Ile	Tyr	Asn	Asp	Fad2-F	(TA515) Q508
601	Arg	Pro	Tyr	Asp	Gly	Gly	Phe	Ala	Cys	His	Phe	His	Pro	Asn	Ala	Pro	Ile	Tyr	Asn	Asp	Fad2-F	(GA908) Q4275
230										240												
661	Arg	Glu	Arg	Leu	Gln	Ile	Tyr	Ile	Ser	Asp	Ala	Gly	Ile	Leu	Ala	Val	Cys	Tyr	Gly	Leu	Fad2-D	wt
661	Arg	Glu	Arg	Leu	Gln	Ile	Tyr	Ile	Ser	Asp	Ala	Gly	Ile	Leu	Ala	Val	Cys	Tyr	Gly	Leu	Fad2-D	(GA316) IMC129
661	Arg	Glu	Arg	Leu	Gln	Ile	Tyr	Ile	Ser	Asp	Ala	Gly	Ile	Leu	Ala	Val	Cys	Tyr	Gly	Leu	Fad2-F	wt
661	Arg	Glu	Arg	Leu	Gln	Ile	Tyr	Ile	Ser	Asp	Ala	Gly	Ile	Leu	Ala	Val	Cys	Tyr	Gly	Leu	Fad2-F	(TA515) Q508
661	Arg	Glu	Arg	Leu	Gln	Ile	Tyr	Ile	Ser	Asp	Ala	Gly	Ile	Leu	Ala	Val	Cys	Tyr	Gly	Leu	Fad2-F	(GA908) Q4275
250										260												
721	Tyr	Arg	Tyr	Ala	Ala	Val	Gln	Gly	Val	Ala	Ser	Met	Val	Cys	Phe	Tyr	Gly	Val	Pro	Leu	Fad2-D	wt
721	Tyr	Arg	Tyr	Ala	Ala	Val	Gln	Gly	Val	Ala	Ser	Met	Val	Cys	Phe	Tyr	Gly	Val	Pro	Leu	Fad2-D	(GA316) IMC129
721	Phe	Arg	Tyr	Ala	Ala	Ala	Gln	Gly	Val	Ala	Ser	Met	Val	Cys	Phe	Tyr	Gly	Val	Pro	Leu	Fad2-F	wt
721	Phe	Arg	Tyr	Ala	Ala	Ala	Gln	Gly	Val	Ala	Ser	Met	Val	Cys	Phe	Tyr	Gly	Val	Pro	Leu	Fad2-F	(TA515) Q508
721	Phe	Arg	Tyr	Ala	Ala	Ala	Gln	Gly	Val	Ala	Ser	Met	Val	Cys	Phe	Tyr	Gly	Val	Pro	Leu	Fad2-F	(GA908) Q4275
270										280												
781	Leu	Ile	Val	Asn	Gly	Phe	Leu	Val	Leu	Ile	Thr	Tyr	Leu	Gln	His	Thr	His	Pro	Ser	Leu	Fad2-D	wt
781	Leu	Ile	Val	Asn	Gly	Phe	Leu	Val	Leu	Ile	Thr	Tyr	Leu	Gln	His	Thr	His	Pro	Ser	Leu	Fad2-D	(GA316) IMC129
781	Leu	Ile	Val	Asn	Gly	Phe	Leu	Val	Leu	Ile	Thr	Tyr	Leu	Gln	His	Thr	His	Pro	Ser	Leu	Fad2-F	wt
781	Leu	Ile	Val	Asn	Gly	Phe	Leu	Val	Leu	Ile	Thr	Tyr	Leu	Gln	His	Thr	His	Pro	Ser	Leu	Fad2-F	(TA515) Q508
781	Leu	Ile	Val	Asn	Gly	Phe	Leu	Val	Leu	Ile	Thr	Tyr	Leu	Gln	His	Thr	His	Pro	Ser	Leu	Fad2-F	(GA908) Q4275

FIG. 3B

	290	300	
841	Pro His Tyr Asp Ser Ser Glu Trp Asp Trp Leu Arg Gly Ala Leu Ala Thr Val Asp Arg	Fad2-D wt	
841	Pro His Tyr Asp Ser Ser Glu Trp Asp Trp Leu Arg Gly Ala Leu Ala Thr Val Asp Arg	Fad2-D (GA316) IMC129	
841	Pro His Tyr Asp Ser Ser Glu Trp Asp Trp Leu Arg Gly Ala Leu Ala Thr Val Asp Arg	Fad2-F wt	
841	Pro His Tyr Asp Ser Ser Glu Trp Asp Trp Leu Arg Gly Ala Leu Ala Thr Val Asp Arg	Fad2-F (TA515) Q508	
841	Pro His Tyr Asp Ser Ser Glu Trp Asp Trp Leu Arg Gly Ala Leu Ala Thr Val Asp Arg	Fad2-F (GA908) Q4275	
	310	320	
901	Asp Tyr Gly Ile Leu Asn Lys Val Phe His Asn Ile Thr Asp Thr His Val Ala His His	Fad2-D wt	
901	Asp Tyr Gly Ile Leu Asn Lys Val Phe His Asn Ile Thr Asp Thr His Val Ala His His	Fad2-D (GA316) IMC129	
901	Asp Tyr Gly Ile Leu Asn Lys Val Phe His Asn Ile Thr Asp Thr His Val Ala His His	Fad2-F wt	
901	Asp Tyr Gly Ile Leu Asn Lys Val Phe His Asn Ile Thr Asp Thr His Val Ala His His	Fad2-F (TA515) Q508	
901	Asp Tyr Glu Ile Leu Asn Lys Val Phe His Asn Ile Thr Asp Thr His Val Ala His His	Fad2-F (GA908) Q4275	
	330	340	
961	Leu Phe Ser Thr Met Pro His Tyr His Ala Met Glu Ala Thr Lys Ala Ile Lys Pro Ile	Fad2-D wt	
961	Leu Phe Ser Thr Met Pro His Tyr His Ala Met Glu Ala Thr Lys Ala Ile Lys Pro Ile	Fad2-D (GA316) IMC129	
961	Leu Phe Ser Thr Met Pro His Tyr His Ala Met Glu Ala Thr Lys Ala Ile Lys Pro Ile	Fad2-F wt	
961	Leu Phe Ser Thr Met Pro His Tyr His Ala Met Glu Ala Thr Lys Ala Ile Lys Pro Ile	Fad2-F (TA515) Q508	
961	Leu Phe Ser Thr Met Pro His Tyr His Ala Met Glu Ala Thr Lys Ala Ile Lys Pro Ile	Fad2-F (GA908) Q4275	
	350	360	
1021	Leu Gly Glu Tyr Tyr Gln Phe Asp Gly Thr Pro Val Val Lys Ala Met Trp Arg Glu Ala	Fad2-D wt	
1021	Leu Gly Glu Tyr Tyr Gln Phe Asp Gly Thr Pro Val Val Lys Ala Met Trp Arg Glu Ala	Fad2-D (GA316) IMC129	
1021	Leu Gly Glu Tyr Tyr Gln Phe Asp Gly Thr Pro Val Val Lys Ala Met Trp Arg Glu Ala	Fad2-F wt	
1021	Leu Gly Glu Tyr Tyr Gln Phe Asp Gly Thr Pro Val Val Lys Ala Met Trp Arg Glu Ala	Fad2-F (TA515) Q508	
1021	Leu Gly Glu Tyr Tyr Gln Phe Asp Gly Thr Pro Val Val Lys Ala Met Trp Arg Glu Ala	Fad2-F (GA908) Q4275	
	370	380	
1081	Lys Glu Cys Ile Tyr Val Glu Pro Asp Arg Gln Gly Glu Lys Lys Gly Val Phe Trp Tyr	Fad2-D wt	
1081	Lys Glu Cys Ile Tyr Val Glu Pro Asp Arg Gln Gly Glu Lys Lys Gly Val Phe Trp Tyr	Fad2-D (GA316) IMC129	
1081	Lys Glu Cys Ile Tyr Val Glu Pro Asp Arg Gln Gly Glu Lys Lys Gly Val Phe Trp Tyr	Fad2-F wt	
1081	Lys Glu Cys Ile Tyr Val Glu Pro Asp Arg Gln Gly Glu Lys Lys Gly Val Phe Trp Tyr	Fad2-F (TA515) Q508	
1081	Lys Glu Cys Ile Tyr Val Glu Pro Asp Arg Gln Gly Glu Lys Lys Gly Val Phe Trp Tyr	Fad2-F (GA908) Q4275	
1141	Asn Asn Lys Leu ter	Fad2-D wt	
1141	Asn Asn Lys Leu ter	Fad2-D (GA316) IMC129	
1141	Asn Asn Lys Leu ter	Fad2-F wt	
1141	Asn Asn Lys Leu ter	Fad2-F (TA515) Q508	
1141	Asn Asn Lys Leu ter	Fad2-F (GA908) Q4275	

FIG. 3C